Title: UAS can augment and improve aerial surveys of pinnipeds, but what about disturbance?

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Abstract:

Biologists at the Alaska Fisheries Science Center's Marine Mammal Laboratory (MML) have been using a small unoccupied aircraft system (UAS) to survey pinniped populations since 2014. The 6-motor rotor craft (APH-22 hexacopter) is an effective and reliable platform for surveying Steller sea lion and northern fur seal populations. This system has been used to take photographs to monitor abundance, map rookery and haul-out sites, and record observations of marked individuals. The hexacopter has great flight maneuverability and can hover over animals or areas of interest. In addition, it can carry heavy payloads (e.g., a high-resolution camera), has reasonably long flight durations (~20 minutes), and can use waypoint software to map terrestrial sites.

The use of UAS for wildlife studies has been increasing yet the impacts of UAS on wildlife are not well known. As UAS become more prevalent among hobbyists and in industry, impacts on wildlife need to be understood. MML biologists are working towards assessing the impacts of UAS on the behavior of pinnipeds. Preliminary studies have been conducted over Steller sea lions and northern fur seals to document behaviors in response to the APH-22 at various altitudes. Environmental (e.g., wind, surf, cloud cover) and biological factors (e.g., age, sex, and reproductive state of the animals being surveyed; presence of other animals such as birds) can affect how the hexacopter is perceived by pinnipeds, which necessitates large numbers of trials to validate results. We hope to conduct future studies on San Miguel Island (California) where multiple pinniped species haul-out on land. With this information, wildlife managers can craft informed UAS regulations for researchers, hobbyists and industry.